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ABSTRACT

This paper discusses "Guided Design," a method for teaching course content which engages students in group decision-making, where problems are solved or issues are resolved in a step-by-step process using instructions and feedbacks especially prepared to make students think for themselves about subject matter rather than depend on the teacher to convey all information. The paper (1) shows the difference a change from lecture/discussion to Guided Design made in student evaluations; (2) reviews principles used in Guided Design to point out how creative thinking combines with the analytical and critical; (3) describes how this method stimulates students to think creatively; and (4) offers an example of a course in theater history which used Guided Design to stimulate student interest. One table and six figures are included and 19 references are attached. An appendix presents student comments about the value of learning in a group decision-making format. (SR)

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CREATIVITY IN GUIDED DESIGN: LOOKING BACK TO THE FUTURE

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September 26, 1990

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Presented at

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Indianapolis, Indiana

Looking back over twelve years of teaching with Guided Design brings to mind a Stevenson cartoon from The New Yorker magazine of the elderly professor standing before the class of graduating seniors and their parents. He is about to deliver the commencement address. Dressed in cap and gown, with spectacles and droopy mustache, he stares blankly ahead. He seems to hesitate. Then, he says, "I know so much that I don't know where to begin." The caption captures the paradox of being so stuffed with knowledge that it seems impossible to sort it out and to be able to communicate what education is all about.

Teaching is a subject which is difficult to define and measure. Marcus Tullius Cicero (143-104 B.C.) once wrote, "Not only is there an art to knowing a thing, but also a certain art in teaching it." It is often taken for granted that scholars who become professors will be able to teach, regardless of the method chosen if one is chosen at all. Peer evaluations of teaching effectiveness and creative activities are undoubtedly the most difficult to apply in deliberations over promotion and tenure.

It is clear to me, however, that teaching is a scholarly/creative activity that can be supported with principles, data, examples, and personal experiences. Finding a method of instruction to suit the teacher and the learning situation is important. It is the purpose of this paper to show what a difference a change from lecture/discussion to Guided Design made in student evaluations; to review principles used in Guided Design to point out how creative thinking combines with the analytical

and critical; to relate how this method stimulates students to think creatively; and, to see what students say about the value of learning in a group decision-making format.

DECISION-MAKING

Guided Design is a method for teaching course content which engages students in group decision-making. Problems are solved or issues are resolved in a step-by-step process using instructions and feedbacks especially prepared to make students think for themselves about subject matter rather than depend on the teacher to convey all information.

In 1977 I was concerned about my course in theatre history because students did not seem to be interested. They were not impressed with lectures, and they seemed reluctant to discuss the subject with any degree of enthusiasm. While analyzing student evaluations with Tony Lutkus, a psychologist and assistant dean, he said that a change in method might be worth considering. He had attended a conference on teaching in Kansas where a group decision-making strategy was demonstrated. He thought, although it meant time-consuming preparation, I might be interested. I immediately sent for an explanation of the method, Guided Design, written by Charles E. Wales and Robert A. Stager. (Wales and Stager, No. 19) The introduction began with a quotation by A.H. Maslow:

> "The urge to create seems to be innate or inborn. It follows then, that the greatest thing a man can create in his lifespan is himself.....Out of the self the man creates... emerge all of the other things that are normally considered

as creative: art, inventions, social systems."

Wales and Stager, both professors of Freshman Engineering, explained how to create a decision-making process that would actively engage students in learning. When I applied this method to teaching theatre history the result was for positive change in every category of student self-reported progress as measured by the national IDEA course evaluation survey. In the teaching methods section there was also a positive change in every category. (Borchardt, No. 2, pp. 47-50) A printout of the evaluation compares the numerical "before and after" results. (See Table 1)

It is particularly interesting to see from Table 1 that "Thinking and Problem Solving" improved from 2.9 to 4.5 in the rating and "Creative Capacities" improved from 2.8 to 4.2 after changing from a lecture/discussion format to Guided Design.

PRINCIPLES

Principles used in Guided Design encourage use of the imagination. If we take a look at the process there are four operations: STATE THE GOAL, GENERATE IDEAS, PREPARE A PLAN, and TAKE ACTION. (Wales, Nardi, and Stager, No. 18, p. 10) (See Figure 1) In each operation three modes of thinking are used: ANALYSIS, SYNTHESIS, EVALUATION. Note that imagination is used in each SYNTHESIS--Create Goal Options, Create Idea Options, Create Plan Options, Create Action Options. In each case the group must imagine <u>what could be</u> and generate <u>options</u>.

Writing a Guided Design project is a high-level creative task in itself as Wales and Stager suggest in their original book.

TABLE 1

STUDENT RESPONSES TO IDEA COURSE EVALUATION
FOR THEATRE HISTORY IN SPRING '78 (Lecture Format)
AND FALL '78 (Guided Design) (N=17)

	Mean Rating[1]		Comparison With Similar Courses (National Sample)[2]	
Self Progress Rating:	Spring	Fall (G.D.)	Spring	Fall
Factual Knowledge	2.8	3.5	low avg.	avg.
Principles and Theories	3.0	3.7	low avg.	not calc.
Professional Skills	2.8	3.8	not calc.	not calc.
Discipline's Methods	2.7	3.6	not calc.	not calc.
Thinking and Problem Solving	2.9	4.5	low avg.	high
Creative Capacities	2.8	4.2	avg.	not calc.
Effective Communication	3.2	4.5	avg.	not calc.
Personal Responsibility	2.9	4.6	low avg.	not calc.
General Liberal Education	3.2	4.1	avg.	not calc.
Implications for Self Understanding	3.1	4.0	avg.	high
Teaching Methods			Frequency Relative to National Sample	
Promoted Teacher-Student Discussion	3.3	3.9	low	medium
Helped Students Answer Own Questions	3.2	4.4	medium	high
Encouraged Students to Express Themselves	3.8	4.3	medium	medium
Changed Approaches to Meet New Situations	3.4	4.2	medium	high
Explained Reasons for Criticisms	3.2	4.0	medium	high
Encouraged Comments	3.6	4.2	medium	high
Seemed Enthusiastic About Subject	3.8	4.4	low	medium
Spoke With Expressiveness and Variety	2.6	2.9	low	low
Stimulated Students to High Intellectual Effort	2.2	4.1	low	high
Introduced Stimulating Ideas	2.6	3.8	low	high

****

	Percentile Rank		
	Spring '78	Fall '78	Fall '79
Overall Evaluation	30	95	75
Would Like Instructor Again	17	7	81
Improved Attitude Toward Field	48	55	80
Involving Students	38	84	--
Communicating Content and Purpose	13	62	--
Creating Enthusiasm	6	35	--

[1]Ratings by students on a 1 - 5 point scale.

[2]Comparisons are supplied by The Center for Faculty Evaluation and Development at Kansas State University.

FIGURE 1
THE DECISION-MAKING PROCESS

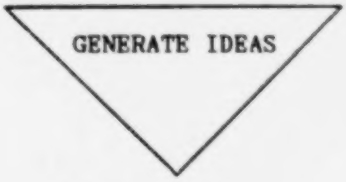
1. Identify Situation Problems
ANALYSIS

2. Create Goal Options
SYNTHESIS

3. Select the Goal
EVALUATION

4. Identify Goal Problems
ANALYSIS

5. Create Idea Options
SYNTHESIS



6. Select Ideas
EVALUATION

7. Identify New Situation Problems
ANALYSIS

8. Create Plan Options
SYNTHESIS

9. Select the Plan
EVALUATION

10. Identify Plan Problems
ANALYSIS

11. Create Action Options
SYNTHESIS

12. Select the Next Action
EVALUATION

(Wales and Stager, No. 19, p. 17) They provided a model for readers to use in creating projects relative to a desired academic discipline. The model provided is for a course on Economic Geography. It involves a hypothetical student, Marcie, who has just gone to work as an apprentice at a travel agency. She is expected to help plan a trip for a client. She goes through the decision-making process with the client and her employer to find the best way for the client to make a round trip from Chicago to Los Angeles. The title for this project is "The Travel Agent." Since the original concept was published in 1977, Wales, Anne H. Nardi and Stager have invented many other hypothetical problem situations to illustrate how group decision-making can be used in a variety of disciplines and on different educational levels. "The Fishing Trip" creates a problem of "survival" for four friends who get stranded on an island in the Gulf of Mexico. In Professional Decision-Making "The Jigsaw Puzzle Contest" demonstrates the efficiency of preparing a plan of action; "The Deer-Car Accident Problem" considers the best way to prevent automobiles from hitting deer which roam near a highway; "The Case of the Missing Reports" demonstrates how to formulate and test a hypothesis; "The Case of the Drinking Bird" finds the cause for a phenomenon of natural science. Each presents a hypothetical situation with a storyline and imaginary characters who become involved in the decision-making process and in finding a solution to a problem. One of their latest problems, "A Preschool or

Kindergarten Problem: Getting into a Car," illustrates how at a very young age children can be guided to process thinking in order to make decisions.

Many principles are *if* statements. "A principle states a relationship between classes of events which enable us to: (1) predict consequences; (2) explain events; (3) infer causes; (4) control situations; and (5) solve problems." (Davis, Alexander, Yelon, No. 5, p.231) The Guided Design process creates *if* situations so that thinking can be motivated and practiced in a nonthreatening environment. *If* these circumstances exist *then* one might expect certain consequences, actions, or reactions to follow.

OPEN-ENDEDNESS

Constantin Stanislavski, the great stage performer, director, and teacher at the Moscow Art Theatre formulated a theory for teaching acting in his book *An Actor Prepares*. The word *if* was a key word for inventing stage action. He stressed its importance as a stimulus for arousing the creative subconscious. It is often referred to as the *Magic If*, magic because it is the mysterious part of intuitive thinking which many feel is the essence of creativity. Actors learn to respond to imaginary circumstances in a way that is believable to a theatre audience. They create actions, vocal inflections, gestures, and motivations consistent with a character in a hypothetical situation. The actor must perform *as if* the scene were taking place spontaneously.

A study by the Task Force on Thinking of the New Jersey Basic

Skills Council under the Department of Education reported that little is known about where creativity comes from or about how to trigger it. But teaching techniques can be used to permit students to experience this important part of the thinking process. Most current systematic problem-solving approaches to instruction agree that there are three necessary, if not sufficient, preconditions to creative thought. One is to delay premature closure on a single perspective or approach to a problem. This allows for a novel perspective or approach to emerge. Second, a strong metacognitive or "executive" ability in which the thinker is conscious of his/her own thought process. This allows for a systematic consideration of a variety of perspectives or approaches to a problem. Third, a strong knowledge base, especially for data-based areas of inquiry. This allows for a great deal of accessible information and a repertoire of strategies for manipulating that information. (New Jersey Basic Skills Council, No. 11, p.45)

A HYPOTHETICAL SITUATION

Robert Stager and the faculty of Engineering at the University of Windsor, Canada, devised a design problem for an Engineering course to incorporate problem-solving and creative thinking. The problem is called "The Bicycle of the Future." (Stager et al, No. 13) Students are asked to come up with a new design for a bicycle "based on ideas from the past, recent technological developments and tomorrow's needs." Solving

the problem is to be carried out in a pattern related to the Guided Design Decision-Making Steps. In this case a hypothetical president, Ted Wheeler IV, sends a memo to his Engineering Design Division. He writes that the bicycle company is embarking on preliminary designs for their 1984 bicentennial year. He quotes his great grandfather's words of a hundred years ago when the company leaped forward with the first practical "hobby-horse" which became the bicycle they now use as their company emblem. Ted Wheeler IV attaches copies of early designs taken from a book by Sumner (Sumner, No. 16) to use as inspiration for a new design. (See Figure 2 and 3) He concludes his memo with the statement, "Before we move forward we must look backward." Students then begin with Decision-Making Steps:

Gather Information
Recognize a Problem
State the Basic Objective
Generate Possible Solutions
Constraints, Assumptions, Facts
Evaluate and Make a Decision
Analyze
Synthesize
Evaluate the Solution
Report & Make Recommendations
Implement the Decision
Recycle

In coming up with possible solutions students have a "brainstorming" session with rules of "no criticism, freewheel,

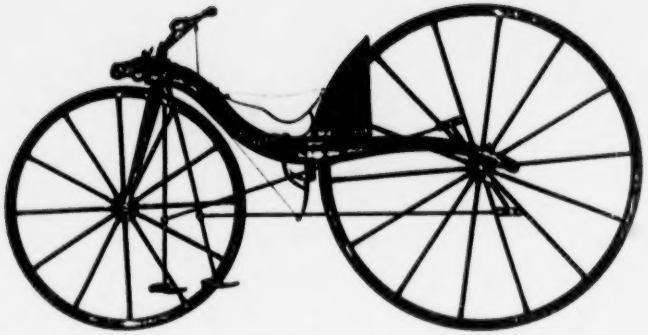


FIG 1: MACMILLAN BICYCLE, 1839 [1]

FIG 2: MICHAUX BICYCLE, 1861 [1]

FIG 3: LAWSON LEVER SAFETY BICYCLE, 1874 [1]

FIG 4: PENNY-FARTHING BICYCLE, 1879 [1]

FIGURE 2

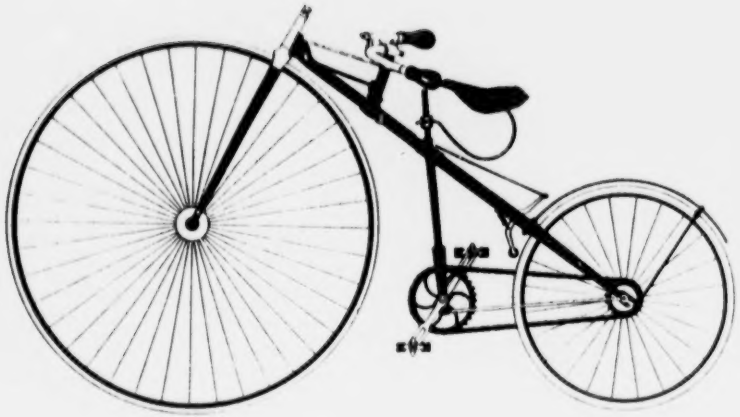


FIG 5: LAWSON BICYCLETTE MACHINE, 1879 [1]

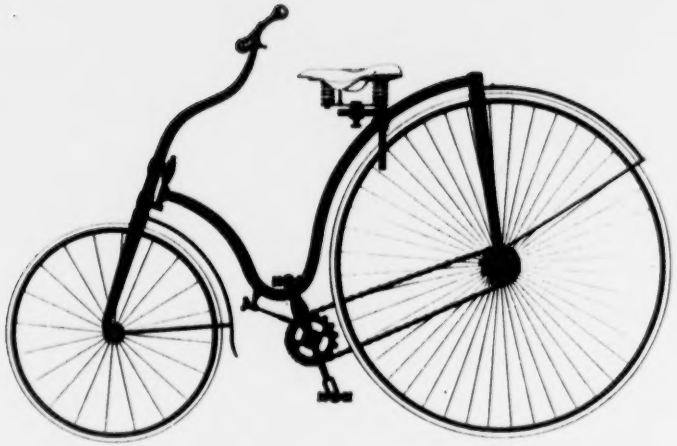


FIG 6: MCCAMMON SAFETY BICYCLE, 1884 [1]

FIG 7: RUDGE CROSS-FRAME BICYCLE, 1887 [1]

FIG 8: DURSLEY-PEDERSEN BICYCLE, 1893 [1]

FIGURE 3

quantity, elaborate, make a list."

In this example, looking back to the future means gathering information and understanding the problem in order to satisfy social needs for the future. Understanding the problem, drawing diagrams, relating the problem to what you already know, conducting a systematic search, brainstorming, thinking aloud and monitoring thought processes, are all techniques that permit creative thinking. (New Jersey Basic Skills Council, No. 11, pp. 45, 46)

DIALOGUE

Dialogue is part of Guided Design in three ways. In group decision-making students speak to one another. They create their own spontaneous dialogues by asking questions, making goal statements, exchanging information, making analogies, relating facts to what they already know. Dialogues between instructor and students also help evaluate progress in solving the problem, encourage conversation for active communication rather than listening passively to lectures, establish a personal and caring rapport rather than a formal objective relationship, provide opportunity for clearing up misunderstandings and for exchange of opinions and values. The third kind of dialogue is that created by the author of a hypothetical problem situation in the Guided Design framework which includes instructions and feedback for each step in the process of finding a solution. For example, Wales, Nardi, and Stager begin "The Case of the Drinking Bird" with

conversation among three fictional characters -- Curt, Janet, and George:

> "Welcome back," Curt said. "Our last session deals with an application of the cause process to a natural science problem. Don't panic! You can handle the job if you simply follow the steps in the decision-making process. I'd like to introduce Janet who will guide you through the session."
>
> After introductions, Janet picked up the toy bird that had been standing at attention on the table, dipped its head in the cup of water, and set the bird on the table so its head could dip into the cup. The bird began to bob up and down. (At this point a diagram appears to represent the bird)

> "This is our next problem," Janet said. "Come on," George replied, "I had one of those bobbing birds when I was a kid. How can that be a problem?" (Wales, Nardi, Stager, No. 18, p. 157)

This conversation is followed by more dialogue with additional characters who help investigate the cause for the phenomenon of the bobbing bird. The process becomes a story with

interacting characters who simulate a problem-solving situation. The story and the characters create interest and provide a means for students to identify with the material.

There is another kind of dialogue in creative thinking. It has to do with values and with relating imagination to concrete realities. Maurice Friedman interpreting the Hasidic philosopher, Martin Buber, said that "The purpose of dialogue is both to question and to reconcile -- freedom and hate, decision and surrender, the abstract and the concrete, universalism and particularism, risk and security, distance and relation, similarity and uniqueness, the mysterious and the mundane, obedience and originality, ought and is, God and man. (Hampden-Turner, No. 8, p.124) He also said that the meaning of what is communicated cannot be defined by one party, it must be discovered through dialogue. The late Joseph Campbell who spent most of his life as a scholar of world mythologies writes in Myths to Live By that he believes along with Carl G. Jung that it is necessary for the unconscious mind containing mythic imageries and visual symbols to carry on dialogue with our outward conscious mind which addresses itself more to the demands of the day. (Campbell, No.4, p. 13) What is required for creative thinking is a dialogue in which visual symbols of the inner mind are recognized by the conscious mind in continuous interaction. This kind of dialogue keeps the mind open to new relationships with a variety of options.

SELECTION OF FACTS

One of the steps in the Guided Design process is "choosing from alternatives." This means that there may be more than one correct solution to a given problem. John Moore, a biologist from the University of California, Riverside, writes in "Opening Remarks: Thinking and Deciding" that an introductory university course in biology should suggest ways of thinking about important human problems that relate to biology. But he says, "Most of these problems such as abortion, genetic engineering, right to life, environmental pollution, and overuse of natural resources, have no single solution that will be accepted by all people. Science cannot specify what the solution should be -- that must be a human choice." (Moore, No. 9, p. 573) In another article "Science as a Way of Knowing -- Evolutionary Biology" Moore suggests that teaching students the conceptual framework of a field is important because it "...gives meaning to existing data and allows one to integrate new data and thoughts into a meaningful whole." Simply memorizing facts is not sufficient. An over-emphasis has been given to conveying information, not to understanding, especially in relating to the exciting discoveries in modern biology. The conceptual framework is needed because..."Facts come and go not necessarily because they are wrong, but because they become uninteresting or irrelevant." (Moore, No. 10, p.470) Moore recognizes that there are different modes of thought e.g. artistic, scientific, legal, religious, and that people think in different ways. Even the same person will

think differently depending on the problem requiring analysis. Consequently he concludes that human choice is the final arbiter and that creativity is possible not only by the artist who is expressing some vision that arises from within but also by the scientist who may exhibit great creativity in the way observations are made and experiments designed and in the formulation of the conceptual schemes after the discovery stage has been passed. (Moore, No. 9, p.575) Guided Design encourages choosing of usable facts and making group decisions within a conceptual framework.

VISUALIZATION

We have already seen how visualizations can contribute to novel possibilities in the Guided Design process. Drawings of old bicycles were used by Stager et al for inspiring a new design. A simple drawing of a "drinking bird" makes it easier to comprehend the natural science problem of finding the cause for the "bobbing" phenomenon where no source of energy is apparent. Showing relationships among parts of a conceptual framework by using geometrical shapes enhances understanding. "Visual thinking breaks you out of the mindset of language, which keeps you stuck in a certain way of seeing and expressing the world" says Bob McKim, author of Experiences in Visual Thinking, Stanford University. (Stewart, No. 15) The literature on creativity is full of anecdotal accounts of great thinkers who worked with images and obtained solutions as sudden flashes, connecting images to the problem to be solved. (Waldron, No. 17, p.488) Michael Faraday and his vision of magnets and surrounding currents in

curved space, Friedrich Kekule and his dream of a snake-like motion which suggested molecules of certain organic compounds forming closed chains or rings, Albert Einstein's unusual way of visual thinking in solving mathematical problems having to do with the shape of the universe, support Waldron's model which helps to explain visual thinking and the creativity process as it relates to the association of perceptual information and visual imagery.

The following example is from my own course in theatre history to show how a group of students created their own visual perception in the solution to a Guided Design problem. "Scheduling a Performance" is the title for this problem. The hypothetical situation is that the provost on campus has allocated funds to invite a professional theatre company to come on campus to perform a classical Greek drama, Prometheus Bound by Aeschylus. The provost is too busy to investigate the proper circumstances regarding place for performance, time of year and time of day that would most benefit students on campus as well as the surrounding community. He appoints a committee of faculty and students to make a recommendation. This is the framework for the problem but the learning objectives that are what the students are expected to learn are:

1. To relate information about staging from ancient drama to problems of contemporary production.
2. To recognize fundamental aspects of ancient theatre architecture.
3. To review and identify the structure of Greek Festivals.

4. To record basic facts about the style of ancient productions. (Borchardt, No. 3, p.35)

In the process of solving the problem they are shown slides of ancient theatre architecture, they read an English translation of Prometheus Bound for the story and to estimate the number of performers required, they read secondary source material to discover the use of masks and the nature of competition among playwrights to win civic awards from dramas presented at the festivals, particularly the one called City Dionysus in honor of the god Dionysus. They learn where, when, why, and how performances took place. The class of twenty students was divided into four groups. Each group solved the problem in a different way but one was particularly creative. Although all students were required to write a report of their research and recommendations one used computer graphics to illustrate some of the creative thinking that went on in the group. The title page reflects also a sense of humor expressive of the group's enjoyment of their work. (See Figure 4) The report demonstrated how the learning objectives were achieved but also the creative idea for scheduling the performance. A one-day event was planned to be held on the athletic field especially designed for festival activities in keeping with the ancient concept of drama festivals. The Campus Plaza was an alternate place in case the athletic field was otherwise occupied or scheduled. Although ancient festivals were held in Spring, and some in Fall, September was chosen because weather would be less inclement in New Jersey. Wednesday would be

δλαωε

Prometheus Bound

or

I was a primitive Liver Donor

Submitted On: Sept. 28, 1989
Submitted To : Dr. Donald A. Borchard
Submitted By : Craig Gestring

the day because they felt there would be maximum attendance midweek at a commuter college and there was also a free period during the day when no classes meet. Two performances were scheduled, one during the free period at 1:00 p.m. and one at 6:00 p.m. Throughout the day, however, other activities were planned:

Greek Music

Toga BBQ

Ethnic Food

Ethnic Dance

Athletic Events

Poetry Readings

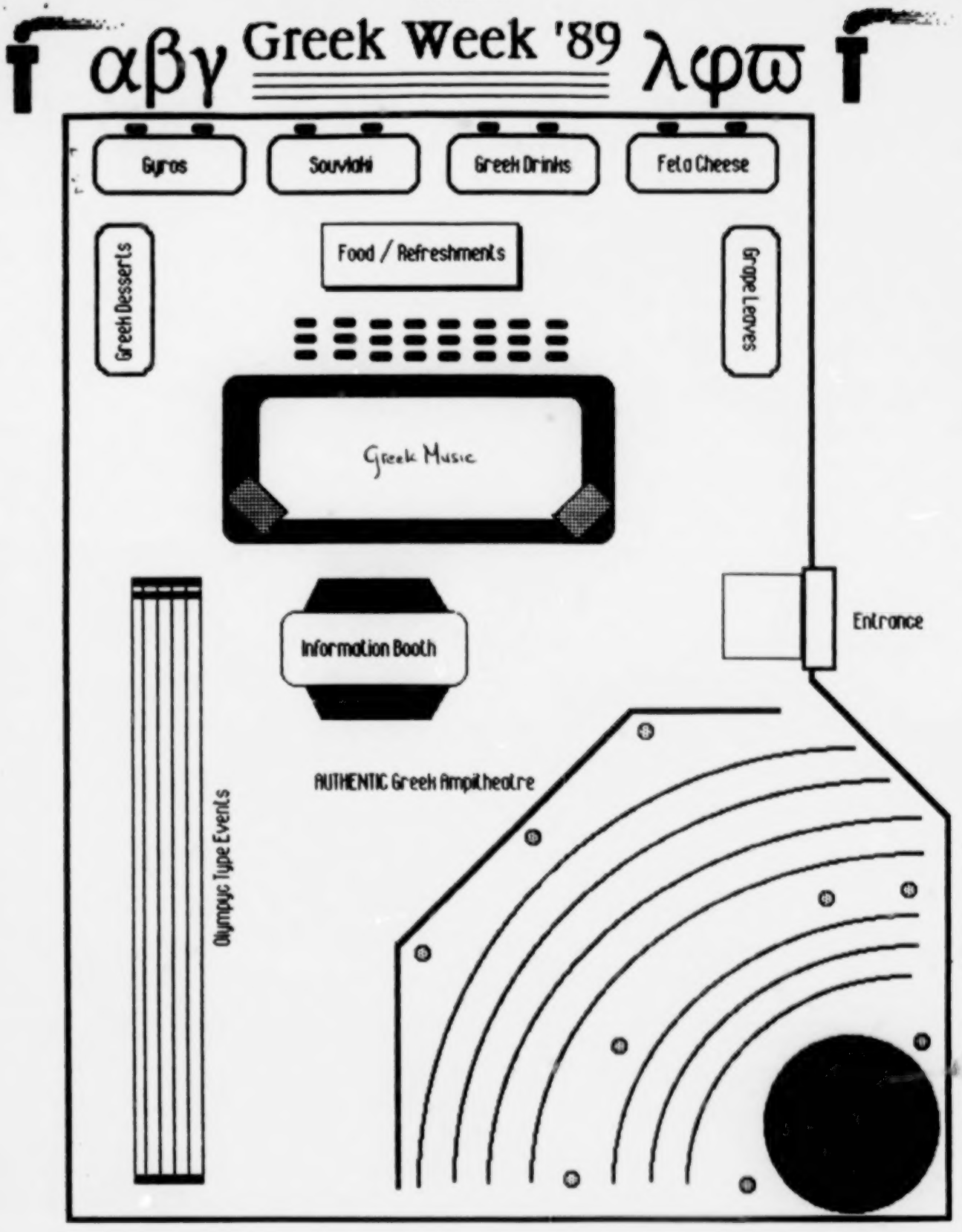
"Name-That-Thinker" philosophy recognition game

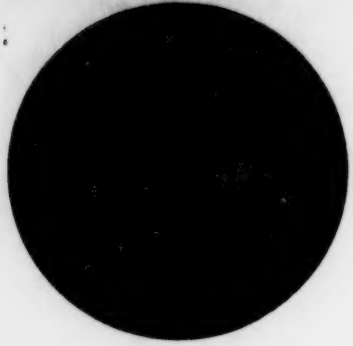
Authentic Greek Drama

Leisure Activities

Apollo-Look-Alike contest

A design for the layout of the athletic field was submitted using computer graphics for the illustration. (Gestring, No. 7) (See Figure 5) Space is provided for Greek musicians and a small audience, an information booth, an "authentic" Greek amphitheatre, a length of track for athletic events, and seven booths for Greek food specialties. To promote the festival among students, a flier was designed. Copies were to be handed out on campus. An airplane with a trailing banner is pictured flying over the campus in the heart of the city of Newark. (See Figure 6) In final reports students were able to evaluate their work in the context


αβγ Greek Week '89 λφω
Gyros
Souvlaki
Greek Drinks
Feta Cheese
Greek Desserts
Food / Refreshments
Grape Leaves
Greek Music
Information Booth
Entrance
AUTHENTIC Greek Ampitheatre
Olympic Type Events



Come to the Greek Fair on the Field

of authenticity realizing that there were constraining factors in preparing for a contemporary performance.

What I observed in this exercise was that students were able to learn using all levels of Benjamin Bloom's cognitive taxonomy:

Memorization

Comprehension

Application

Analysis

Synthesis

Evaluation (Bloom, No. 1)

In the affective domain they were cooperative, interested, enthusiastic, and they felt good about the results of their work. The problem they were given permitted them to think creatively as well as analytically.

THE FUTURE

Is civilization on trial? This is a question asked by E.C. Stackman, a famous scientist and past president of the American Association for the Advancement of Science. He asked it thirty-nine years ago. (Stackman, No. 13) His answer was, "Of course it is." He thought the trials of civilization were due partly to man's shortsightedness in that too often we see neither the past nor the future clearly. He felt that we fail to profit by lessons of the past because we lack historical objectivity and perspective, and that we lack wisdom with respect to the future. As a consequence the realization of new ambitions is all too often incompatible with the preservation of cherished values. Well, civilization is still on trial.

John Moore, in "Thinking and Deciding" believes "...it is mandatory that we educate students to a degree that they will make decisions that will lessen the probability of a worldwide and terminal Tragedy of the Commons." (Moore, No. 9, p. 580) He means that our non-renewable resources -- oil, gas, coal, metals-- should not be squandered, and renewable resources -- air, water, soil, animals, and plants -- should not be used at rates that exceed their ability to regenerate. He urges educators to encourage students to think of both the short-term and long-term consequences of their decisions.

Because our students in 1990 have become more diverse in age and in racial, ethnic, and economic background than they were twenty years ago there will have to be new and more diverse educational approaches to meet their needs. The Final Report of the National Institute of Education Study Group on the Conditions of Excellence in American Higher Education suggested on the basis of its extensive review of the literature on student development in college three "critical conditions of excellence" for higher education: (1) active student involvement in their own development, (2) high expectations for their achievement, and (3) the regular assessment of this achievement and provision of feedback to students and teachers alike for the improvement of both student development and institutional performance. (Gardiner, No. 6) There is a growing agreement that in the future teaching in colleges and universities will focus on students developing rather than on teachers teaching and that achievement

rather than exposure to courses will be emphasized.

It should be clear after reviewing principles and practices in Guided Design that it is creative as well as informative, it is active instruction, it provides for a stimulating learning environment and opportunities for making decisions and achieving objectives. It is also learning that students enjoy and value. When given the option to express their feelings about studying theatre history with the Guided Design format many students recognize that this way of learning gives them a special insight into their own lives and their ability to participate in the real problems of society. (See Appendix) As a teacher, one need not, like the elderly professor at commencement in the cartoon, stare blankly ahead not knowing where to begin.

APPENDIX

STUDENT RESPONSES TO THEATRE HISTORY: 21 965 311, 312

In a take-home final examination students, most of whom were enrolled to satisfy a general humanities requirement or as an elective, not as a chosen major within the theatre arts curriculum, were given an optional question to summarize their experience in the course if they chose to do so. They could earn up to ten points for their answer relative to its being supported well with examples or other documentation from their semester's work. They were to respond to the following using the essay form of answer:

> "The value of studying theatre history may vary from person to person depending on background experiences, previous knowledge, attitudes, interests, motivation, personal goals, and so on. If your feelings about theatre history have changed during the course of your work, explain two major influences using specific examples if possible. For example, the stories involved, character relationships, group decision-making, open-ended problems in theatre production, chronological or other factual information, biographies, values expressed by playwrights, or principles from essays may have influenced your thinking."

Even if this seemed an easier choice from other topics on which to write, answers were generally lengthy and complete. Most students chose to use this as one of their questions. Responses were positive and it is difficult, after getting to know them

personally after many discussions, to doubt their sincerity. Following are excerpts from their writing which seem most directly related to the focus of this paper.

SPRING AND FALL, 1988

Kyle Potenta

"I wish that more of my classes were more tutorial related than lecture based. I find there is more student interaction and learning when you deal on a very basic level with others who are your equal."

"...most helpful in solving the open ended problems we were faced with in class are discussions with students and instructor as well as the films and slides. I enjoyed and better understood the questions we were confronted with in the Think Tank Theatre book when I discussed them with other people in our group."

Carol Kalafsky

"Group interaction was perhaps the most significant information provider." "...This created an atmosphere of group cooperation as it fostered the individual members to view their goals as congruent and coinciding." "...Since there is no such thing as being too effective in communicating with others in a group setting, there was continual effort to learn about history of theatre, the background of playwrights, new scripts, and an exceptional effort to gain insight about the problem. This enabled students to be in a supportive group climate as to be able to achieve its objectives in the text Think Tank Theatre."

Beth Ann Ross

"This class was very interesting. I enjoyed going to class because it was the first time that all the work done was done by students. I also liked the class because I had to think and come up with the solutions to problems."

Donna Vyniski

"The best source that I used in solving the problems were the discussions with the instructor and the students." "...Lastly, I would like to say that this class was very informative and made me enjoy learning about theatre history."

Lori Liskiewicz

"I consider the discussions and films most effective of all." "...I found the group discussions especially helpful because I listened and learned from other people..." "...I learned much about all facets of the theatre."

Edgar Vargas

"The feedback section in Think Tank Theatre is extremely helpful because it clears up many of the questions we as the students have."

Barbara Cardenas

"The situations which I encountered in Think Tank Theatre were proposals which required thought and perception. Often times, they were injected with raw, primary materials from which students were to develop and create. Therefore students became both

designers and artists. Yet design and art could not be achieved properly without the tools by which to bring them to fruition. Therefore sources interacted with the essential to provide the skeleton of the Think Tank Theatre assignments."

James Maggio

"It is true that a variety of sources were used by us in answering the open-ended questions this semester, but there were two in particular that I found most useful. The first is the discussions with instructor and other students. There is no better way to gain alternate insights to pieces of work, than to hear the impressions of others who are critically analyzing the same piece at the same time."

Maureen McKenna

"...as I began to share my feelings about the plays we were discussing it became more interesting." "...Working with my group this past semester I found to be most enjoyable. We all contributed and learned from each other." "I have experienced many memories in Theater History these past two semesters. I look upon this past year as a growing experience. I have learned a great deal." "As this semester comes to an end my memories of Theater History will live on. Thank you Dr. Borchardt for sharing your feelings, experiences and knowledge. I feel you have given me so much. Thanks."

Kevin Hunter

"This class was very interesting for me, for the second time around because I had a better insight into the subject matter. Also, I have found the Think Tank Theater book a very useful resource in general when approaching other scholastic situations."

Shirley Wright

"After the research, the learning objectives, decision-making discussions I now feel like a Broadway connoisseur. I mustn't forget to mention the way you conducted the course, personally I believe your['e] on to something, the class was very informative, and you got more work out of us than any professor could ever imagine, and I believe we all came willingly and happily for the slaughter."

Samuel Ramos

"I believe the one good thing that I did get from this particular part of the class was that now I can see things historically: I can see where it came from and where it is going."

Joseph Brady

"I have also realized that my own potential for development and comprehension in discussion has been improved in Theater History class."

Nancy Gulino

"I have become so intrigued that I'd like to expand my knowledge of theater movements and find out what's popular today!"

Susan Holzschuh

"...with the aid of Think Tank Theater and group discussion, I learned how theater can be approached as a problem waiting to be solved." "...By approaching Theater History in the manner presented above, I learned how to get at the meaning of a play by examining it in depth."

SPRING AND FALL, 1989

Rehana Vohra

"In this group-decision making we all pulled our ideas together from experience or readings and discussed the topic. In this way I learned many different things about theatre through the eyes of fellow students. This group decision-making also helped me communicate about certain topics with other people, therefore, this type of set-up in this class also helped me in my other classes that involved group decision-making."

Renee Presuhn

"...the open-ended questions encouraged us to use our brains, and not just to accept the lecture of a professor as fact. We had to consult sources, and to decide what information was pertinent, and how to use the information. All in all, I say that the theatre history course was a valuable one in which more than just the history of the theatre was learned."

Eithne Bergin

"One thing I enjoyed about taking this course is that the student got to research about theater. Instead of writing notes provided by the teacher and not having any interest, the student has the responsibility to find out about the history of theatre. Students receive a bigger reward from studying and researching information. This way they retain in their minds what they have learned."

Robert Errera

"Being a fan of the theater, I found theater history to be an informative and enjoyable class. My feelings towards theater history have changed in that my respect for the craft of theater

has grown." "...I liked the idea of open-ended problems when studying theater."

Kathryn Brady

"Open-ended problems in theatre production has also influenced my theatrical knowledge. This method of learning was refreshing because it provided our group with a variety of input to choose from to successfully solve our problem. I found that each solution was dependent upon each circumstance. It was proved that no one answer was correct. In fact, many usable answers were provided to the problem but part of the decision making process forced a compromise."

Darlene Perkins

"It was wonderful to discuss the problems put before us with people who really cared about the projects. Finding out what other people felt and getting new points of view was indeed stimulating."

Cindy Orlando

"I learned to think things out clearly, step by step...This type of thinking can be applied to virtually every day of our lives since each involves extensive decision-making."

Michele Blake

"The first problem in Think Tank Theatre and the first paper were the beginning of the enlightenment period for me. The rousing in-class discussions that my group indulged in were eye opening: these were nothing of the long lectures with a barrage of dates and names. They were, on the contrary, a recreation through our

minds' eyes, of Greek theatre history utilizing a combination of pictures, historical accounts and slides shown in class."

Laurie Heflich

"...I learned a lot in this course...each method of learning helped me to feel more comfortable with the theatre. Group decision-making helped me to not only make friends and socialize, but most importantly to listen to the ideas and opinions of the others in the group. The time we spent discussing the problems in Think Tank Theater proved beneficial to me in my learning and also in my values of the theatre.

Rob Ferucci

"...I have gained much knowledge which I feel is due to the way the course is organized. I found the book Think Tank Theatre to be very helpful because it provided insightful ideas for solving each problem." "...One major influence that changed my feeling about theatre history was group decision making. I didn't think this could work too well in problem-solving but I found this just the opposite. Working in the group provided a myriad of ideas to work with. Everyone was able to contribute so we were able to reach the best solution."

William Cinurchin

"Theatre History has a different approach in which the readings are applied to actual realistic problems and the steps taken to solve these problems. Not only are readings assigned, but the background into where the readings fit into the history of theatre are of significant importance. The time period, the playwrights,

and the history of Greek comedies and tragedies, all provide background into the play and are necessary for performing these dramas." "...The open-ended problems in theatre production are an excellent way to learn the approach to theatre history." "...Studying theatre history in the method used this semester is invariably better than methods used in Literature courses. Through research, films, textbooks, and discussions, I was able to gather valuable insight into theatre productions of the past. By applying this background information, solving the open-ended problems by using the decision making process broadened my background into theatre history and provided me with techniques that I applied to group projects in other courses."

Efrain Agama

"Think Tank Theatre was very useful...the format of the text is wonderful." "...I found these `feedbacks' most essential because it gave us something to compare our answers to." "...All in all Think Tank Theatre is a well written, unique and fun way to learn about the theatre. In a sense it makes the student get involved..." "Group Decision Making -- This was a lot of fun! At first I felt that this course was going to be long boring lectures. Was I wrong." "...Even though I mentioned that this class was fun and enjoyable that does not mean it wasn't a challenge. Far from it. The problems presented to us in Think Tank Theatre really inspired us to use our intellect."

Craig Gestring

"The format of this class was different from any other class I

have ever taken in college. Even though I have taken courses with the same Professor before, I had no idea of what to expect this semester. As it turned out I was pleasantly surprised by the outcome. Not only did I get a chance to meet some really nice people, but more importantly, we learned as a group." "...Not only did we learn, but we were given the opportunity to be creative. This was the most important, as it let the creative side of us out, like a loose dog in the backyard. And we excelled." "...We were encouraged to think and be creative while at the same time we were provided with whatever guidance we could think to ask for. To me, this embodies education. Not only can I come away from this class having said that I learned something, but I can also say I've had a great deal of fun while doing it."

Elizabeth Piccininni

"I have enjoyed this class and found it interesting...I especially liked the group decision making aspect of this class. I feel that it helped me to hear other people's reactions to the plays, as well as their comments. This feedback encourages others to participate as well, and it is enlightening to see how involved one becomes in a group project."

Joseph Bastante

"When I first registered for this course, I planned on taking a semi-interesting class with hopes of learning a little about theater history. I have gained more than I expected from this course."

Patty Galitis

"There were many influences in my feelings during the semester, for example, the casual, informal way the class is set up, the idea of group decisions and discussions, and the reading material." "...It was refreshing to be allowed to think on my own instead of being `spoon fed' notes and information." "...Finally, the reading material along with Think Tank Theatre enabled me to study and understand the various movements of theatre history." "...In conclusion, after this course, I can say that horizons have broadened and value of theatre has increased."

Tracy King

"One very important source of information for me was Think Tank Theatre. It was extremely helpful to me because it helped me to analyze each problem to the fullest extent and obtain a great deal of knowledge of each play discussed." "...This was a very educational class which I have recommended to other students."

Kathleen Lynch

"You taught us more than just history, you taught us how to explain our ideas to a group, work together and feel free to express ourselves. I feel I learned alot here."

Richard Jimenez

"To conclude, this course has had great impact in my view towards life in general. Aspects which influenced this advancement are of social value as well as academic..."

Wendy Borowski

"Studying a course in Theater History has changed my views on the

subject, or more realistically, has educated me enough so I can now form views on the subject." "...it also can teach us valuable lessons about life, past, present and future." "...One major influence in my decision was the group decision making process we went through to evaluate each problem. By talking out loud with each member of the group, it helped me to see other opinions and critiques."

Diana Queiros

"Another major influence was the group decision-making because it allowed us to gather more information and opinions. In a group we got more ideas of how to solve the problem than if we had had to do it on our own."

Tom Lesiak

"I feel that I have learned alot from this course." "...The second influence was being involved in the group decision making process."

James Maggio

"There are a number of changes in my opinion of the theatre, not only over the course of this semester, but also over the last two. I have learned a great deal about the importance of critically evaluating a work of the theatre from a variety of angles and methods to better understand authors' motivations and intentions."

Terri Schaffer

"Thanks for some of the most enjoyable memories of my college experience!" "Previous to my participation in this Theatre

History class, I never really considered the vast opportunities for knowledge and fun that the theatre presents. Engaging in the exploration of movements such as Naturalism, Realism, Expressionism and Absurdism, proved to be educational, interesting and often times alot of fun. One of the most enjoyable experiences in Theatre History class was the process of group decision making."

Jody Canestrino

"...I feel I have a better understanding of these `isms'. I also felt that Think Tank Theatre guided me in drawing conclusions about the play...to open my eyes to different aspects of theatre..."

Donna Vyniski

"My feelings have definitely changed during the semester. I already loved Broadway plays and had had the first semester of Theatre History before and had to take the second half. One major influence that changed my views is the group discussions about the different plays."

Beverly Khan

"Through the use of effective group-decision making processes and open-ended problems in theatre production, I have learned that Theatre History can be as exciting to study as it is to perform in a theater." "Gathering information, establishing goals and objectives, and evaluating is an important cycle of the decision making process. I understand why Dr. Borchardt chose to title his book Think Tank Theatre because of this thought process."

Kristine Ciborowski

"The analytical skills that have been developed have helped me greatly by giving me the wonderful opportunity of seeing the world in varying perspectives." "...In addition to the course material group decision making has been important."

REFERENCES

1. Bloom, Benjamin. Taxonomy of Educational Objectives: Handbook I, Cognitive Domain. Longmans, New York, 1956.
2. Borchardt, Donald A. "Theatre History: The Guided Design Approach." ACA Bulletin. The Association for Communication Administration, Annandale, Virginia, Issue #51, January, 1985.
3. Borchardt, Donald A. Think Tank Theatre. University Press of America, Lanham, Maryland, 1984.
4. Campbell, Joseph. Myths to Live By. Bantam Books, New York, 1973.
5. Davis, Robert H.; Alexander, Lawrence T.; Yelon, Stephen L. Learning System Design. McGraw Hill, Inc., New York, 1974.
6. Gardiner, Lion F. "Teaching Students in College: Selected Resources." Rutgers University, Newark, New Jersey, 1990.
7. Gestring, Craig. "Prometheus Bound, or I was a primitive liver donor." A report submitted to Professor Donald A. Borchardt for theatre history class, Rutgers University, Newark, New Jersey, September 28, 1989.
8. Hampden-Turner, Charles. "Encounter on the Narrow Ridge: Martin Buber interpreted by Maurice Friedman." Maps of the Mind. Collier Books, A Division of Macmillan Publishing Co., Inc., New York, 1981.
9. Moore, John A. "Opening Remarks: Thinking and Deciding." From the Symposium of Science as a Way of Knowing -- Genetics presented at the Annual Meeting of the American Society of Zoologists at Baltimore, Maryland, December 27-30, 1985.

10. Moore, John A. "Science as a Way of Knowing -- Evolutionary Biology." American Zoology, 24, 1984.

11. New Jersey Basic Skills Council. Thinking Skills: an overview. Department of Higher Education, Trenton, New Jersey, March 19, 1986.

12. Stackman, E.C. "Science and Human Affairs." Science, Vol.113, Feb.9, 1951.

13. Stager, Robert A.; and Faculty of Engineering Design. "The Bicycle of the Future." University of Windsor, Windsor, Canada, September, 1982.

14. Stanislavski, Constantin. An Actor Prepares. Translated by Elizabeth Reynolds Hapgood, introduction by John Gielgud. Theatre Arts Books: Robert M. MacGregor, New York, 1952.

15. Stewart, Doug. "Teachers aim at turning loose the mind's eye." Smithsonian, August, 1985.

16. Sumner, P. Early Bicycles. Hugh Evelyn Ltd., London, 1966.

17. Waldron, Manjula B. "Modeling of Visual Thinking and Creativity." Session 2237, Annual Conference Proceedings, ASEE, 1951.

18. Wales, Charles E.; Nardi, Anne H.; Stager, Robert A. Professional Decision-Making. Center for Guided Design, West Virginia University, Morgantown, West Virginia, 1986.

19. Wales, Charles E.; Stager, Robert A. Guided Design. West Virginia University, Morgantown, West Virginia, 1977.